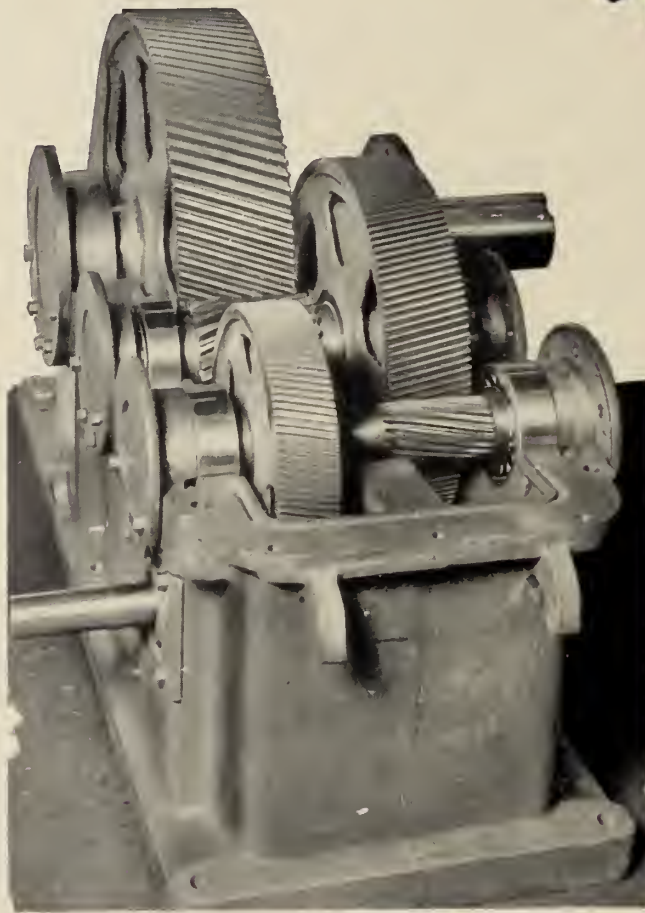
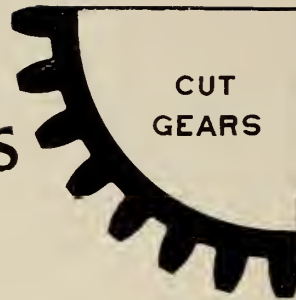


# TOIKE OIKE



*December 18, 1952*

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A lot of gear power in compact space is in this triple reduction, single helical gear drive. This one is on the drive of an ore roaster (hearth type) at a large smelter in north-west Manitoba and is a real quality job.

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# TOIKE OIKE

December 18      »      »      1952

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*Published Every Now and Then By the*  
**University of Toronto**  
**Engineering Society**



## FAITH OF THE ENGINEER

*I AM AN ENGINEER. In my profession I take deep pride, but without vainglory; to it I owe solemn obligations that I am eager to fulfil.*

*As an Engineer, I will participate in none but honest enterprise. To him that has engaged my services, as employer or client, I will give the utmost of performance and fidelity.*

*When needed, my skill and knowledge shall be given without reservation for the public good. From special capacity springs the obligation to use it well in the service of humanity; and I accept the challenge that this implies.*

*Jealous of the high repute of my calling, I will strive to protect the interests and the good name of any engineer that I know to be deserving; but I will not shrink, should duty dictate, from disclosing the truth regarding anyone that, by unscrupulous act, has shown himself unworthy of the profession.*

*Since the Age of Stone, human progress has been conditioned by the genius of my professional forbears. By them have been rendered usable to mankind Nature's vast resources of material and energy. By them have been vitalized and turned to practical account the principles of science and the revelations of technology. Except for this heritage of accumulated experience, my efforts would be feeble. I dedicate myself to the dissemination of engineering knowledge, and, especially to the instruction of younger members of my profession in all its arts and traditions.*

*To my fellows I pledge, in the same full measure I ask of them, integrity and fair dealing, tolerance and respect, and devotion to the standards and the dignity of our profession; with the consciousness, always, that our special expertness carries with it the obligations to serve humanity with complete sincerity.*

# TOIKE OIKE

TOIKE OIKE, TOIKE OIKE, OLLUM TE CHOLLUM TE CHAY,  
SCHOOL OF SCIENCE, SCHOOL OF SCIENCE, HURRAY, HURRAY, HURRAY

Vol. XLIV

December 18, 1952

No. 6

## About This Issue

You have before you the first of the two big issues of toike Oike this year. It represents the partial fruition of our plans for the Engineering publication. As you can see, we have included, along with a bit of an outline of the term's activities, and a round-up of our sport accomplishments, reports on the School Dinner and Skule Nite, with a financial statement from the former. We feel it the duty of the executive and all committees who handle any amount of funds, to report to the members each year, giving, at least, a financial report. It was at one time the practice to present these in the annual Transaction and Year-Book, but when the Society became pressed for funds and the year-book was dressed up for sale, this phase of its duties was to some extent overlooked and with the demise of "Transactions", forgotten. This year Toike Oike has taken over that responsibility. Earlier in the year we presented the estimated budget of the Society; in this issue is the financial statement for the School Dinner and next month you will see the revised budget.

Also in this book there are two articles concerning current Canadian works. One, the Brampton Diversion Channel, is close to home; the other, Alcan's Kenamo-Kitimat project, although three thousand miles away, has stirred the imagination of the whole country. It is our contention that as the official publication of the members of Canada's largest and best known Engineering school, the Toike Oike deserves to be more than just a bulletin board and cheap joke paper. The

(Continued on page 4)

### UNIVERSITY OF TORONTO ENGINEERING SOCIETY

December 2, 1952.

To Cast and Crew of Skule Nite 5T3:

On behalf of the Engineering Society Executive and members, I would like to take this opportunity to thank you, the members of the cast and crew of Skule Nite 5T3, for the superb job done on the show this year.

Everyone from the actors and actresses down to the fellow who rang the phone bell for J. P. Dollars was responsible for the overall good performance and each one deserves his own pat on the back.

There have been nothing but favourable comments from all sides for the show this year. We appreciate this very much and thank you again for the wonderful job done.

JOAN PIERDEN,  
Secretary.

## TOIKE OIKE

Devoted to the interests of the Undergraduates of the  
Faculty of Applied Science.

Published every now and then by the Engineering Society of the  
University of Toronto.

Opinions expressed are not necessarily those of the  
Engineering Society or its officers.

### EDITORS OF TOIKE OIKE

EDITOR.....DOUG CHRISTIE, 5T4 Chem  
SPORTS EDITOR.....TOM McCANN, 5T4 Chem  
ASS'T. SPORTS EDITOR.....GEORGE KOLOSTA, 5T4 Chem

### CREDITS

#### Our Thanks To:

Mike Spence for the report on the School Dinner.

Don Gilley for the same on Skule Nite.

Phil Byrne for the Skule Nite pictures.

Dave Fenwick for his retrospect view of the term's fun and his pictures of the float parade and the auction.

Jack McOuat for the Brampton Diversion Channel story.

The Ontario Association of Professional Engineers for the use of cuts used in the Brampton article.

Material for the Brampton Channel story was taken from the bulletin of the Association of Professional Engineers, and for the Kitimat story, from the Engineering journal.

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(Continued from page 3)

Society has notice boards for its bulletins, although the paper does provide a slightly greater scope, and humor magazines are on sale at Mac's and the Press for less than we could produce them. We feel that Toike Oike should promote an awareness of Canadian Engineering, of S P S and of the U. of T.

In our last issue at the end of next term, we hope to present more of the same. If any of you worked on some project, or know of some project that might be of interest to the rest of us, how about an article for the last issue?

## Founder Dies

The September issue of the Engineering Journal notes the passing of Dr. T. Kennard Thomson, the founder of the Engineering Society, who died in New York July 1, at the age of 88 years. Dr. Thomson entered the School of Practical Science in 1883 and

graduated from the then three year course in 1886. In the spring of 1885, his second year, the Engineering Society was founded, as the preface to an old edition of the Society's proceedings says, "through the exertions of a few of the students in the Department of Engineering, Messrs. Herbert Bowman, of the third year, and T. Kennard Thomson of the second year, being the principle promoters." For that year and the next, Dr. Thomson held the position of Secretary of the Society. Dr. Galbraith, principal of the School, was the president, for the first four years; H. E. T. Haultain now Professor Emeritus of Mining Engineering, took the position of President in the fifth year. (Also in the Executive of the Society in two of the first four years was C. H. C. Wright, father of our Prof. W. J. T. Wright).

Dr. Thomson worked after graduation as a draughtsman for the Dominion Bridge Company, and then was engineer for several bridge building companies, becoming a widely recognized authority on pneumatic caissons. He planned foundations for buildings

on Manhattan Island which required caissons 100 feet below the street level. He was a consultant in the construction of 50 major buildings and over 200 bridges. He also held several patents for tunnel and lighthouse construction, and contributed numerous papers to engineering journals and wrote many articles for New York newspapers.

He spent a great deal of time on schemes for vast engineering projects. His favourite was to transform New York into a "super city". This included filling up the Upper Bay by extending Manhattan Island six miles southward thus gaining an additional nine square miles of useful land. To ease the traffic, he proposed four-deck avenues—one for rapid-transit trains, one for trucks, one for pedestrians and the other for buses, taxis and private automobiles.

Up until recent years, he celebrated his birthday each year with a 15-mile walk from the Engineer's Club to his New York home.

Over the Holiday . . . .

Get Yourself a Date for the

**"SCHOOL-AT-HOME"**

featuring

*"Paris in the Spring"*



THURSDAY, JANUARY 29th

ROYAL YORK HOTEL

Dress: Formal or Semi-Formal

TICKETS \$3.00

Benny Louis

Frank Bogart

## YOUR EXECUTIVE

In two months, the next Engineering Society general election will be upon us, and we should soon be giving serious thought to the matter of choosing our next executive. Unfortunately, in a faculty as large as S P S, it is difficult for everyone to learn the qualifications of the various nominees for any one position. It also often happens that more than one person who does have the qualifications for the job never thinks about running. For that reason we would ask you to start looking about you now, with an eye to the coming elections.

Now and again there are complaints, probably true, that the executive of the Engineering Society is out of touch with the members and is not representing them at all. In answer we can only say that if we are a clique it is not by choice. It is because Jake Skule regards the Engineering Society, its executive and its business, as something apart from himself—a sort of minor political playground where those who wish can romp. But this is not the U.C. Lit kiddies, this is the Engineering Society. Naturally, we on the executive expect to learn something from the work, and to gain new friends, but we have taken our positions primarily in an honest attempt to help our Society and its members. If those members disagree with what we are doing, then they should say so, and loudly. Every Toike Oike newspaper has an editorial page, the primary purpose of which is to present opinions, but which seems to be destined to present none but the editor's. In three years, but one letter-to-the-editor has been tendered—and that from the President of the Society.

In the last couple of years we have seen the phenomenon of having four or five nominees for several of the positions, while others are left with only one or, as in the case of the Debating Society Chairman and External Affairs Rep. this year, no candidate. In the hope that this has been due only to the lack of advance knowledge of the positions and the work and responsibilities attached to them, we are printing below a description of the various offices and the customary duties of each.

The Executive Council is composed of twenty-four voting members, all of whom are elected yearly except the Director of Publicity and Publications, who is appointed to his position. These

members are the officers proper of the Engineering Society and the head of each of the other official organizations within the School, along with the Representatives to the SAC, the External Affairs Rep., and the Director of Professional Relations. The Editor of Toike Oike sits on the executive, but can neither propose motions nor vote on them.

**President.** The President of the Engineering Society is, during his term of office, a member of the fourth year (i.e. elected at the end of his third year to serve the next). This is without any doubt the most important position, for it is largely the President who guides the policy of the Engineering Society. In general, he must keep informed about every phase of Society activity, coordinate them properly and see that all are carried out to satisfaction. He is the "General Superintendent" of the organization.

**First Vice-President.** The First Vice is also from fourth year. He is traditionally in charge of all the social activities, and in particular the three functions, the School Dinner, Skule Nite and the School-at-Home. The President and his First Vice, because of their duties, usually are men who have been closely associated with the activities of the executive.

**Second Vice-President.** The Second Vice, who is a member of third year, looks after the operation of the store which represents the other major phase of Society activity. While it involves a bit of work, there is no reason why even a Chemical Engineer should not take on this job. Mainly the Second

Vice must estimate the sales for the coming year, order supplies accordingly at the most economical rate and see that they arrive on time. Then it is his responsibility to keep the stores stocked and running smoothly, to keep track of the accounting and take several inventories of stock.

**Treasurer, Third Year.** The treasurer is responsible for keeping an accurate record of all financial transactions. He and the President prepare the budget of the Society each year according to the anticipated revenues and adjust it as necessary.

**Secretary, Second Year.** The term "secretary" has apparently been too often confused with "stenographer", for over the last few years it has not been popular, although the position is an important one. The secretary of the Society must keep minutes of all meetings (once every two weeks) and write those official letters of the Society which are left by the other officers.

**Club Chairmen, Fourth Year.** The club chairmen, eight of them, sit on the executive as representatives of their respective courses. Their main duty is the direction of their own clubs, involving amongst other things the organization of club dances, meetings and field trips. The clubs are also often called upon to distribute information, School Dinner tickets and so on from the central executive. The chairman usually is connected with the club activities previous to his election.

**Year Presidents.** Back in the times when initiations were all the rage and class feelings ran high, the year execs

(Continued on page 7)





## Football

Although the Mulock Cup resides in halls other than the hallowed hall of the little red Skule house, the football teams of S.P.S. enjoyed a great season. Both senior and junior teams made the play-offs and at this point an all Skule championship game looked almost like a sure thing. Yet we had not considered the team coached by old man winter. He defeated both teams, I'm sorry to say, by having his team put the playing field in a condition suitable for making pies only.

### Senior Skule

The able coaching of Jack McFarlane and Pete Gowinski built a powerful offense around the running of Bob Ella and George Lewis, and the excellent kicking of sure-footed Bruce Day.

At the close of the regular season, Senior Skule, with a four won, two lost record, were in second place in the A league and drew St. Mike's of the B group in the semi-finals. Sloshing through the mud to an upset victory, St. Mike's put out the much lighter but valiant Seniors.

Representing the light line which gave a very creditable showing all season, Bill Bruce was chosen to the inter-faculty all-star team. Despite the fact that Bill is nominally an end, he was placed in the middle spot to make room for another end on the dream squad.

### Junior Skule

Junior Skule, coached by Bobby Peart and Keith Poff, started out on the wrong foot, losing the season's opener to St. Mike's by a slim 2 point margin after making a great comeback. The Juniors recovered from their loss and gaining confidence, went on to sweep the rest of their regular games and end up in second place in the B group with a three won and one lost record. In the play-downs, Junior Skule was matched with Dents for a chance to enter the semi-finals.

The molar men got off to an early lead and hung on to gain a one point victory. The much vaunted Junior Skule offense, led by the passing of Bob Hamilton, the play calling of Don Hart, the running of Bill Clarke and the pass catching of Ed Chorestecki and Rich Golisewsky was practically non-existent until the dying minutes of the game. By this time it was too late and the season was over.

The star passer of the Juniors, Bob Hamilton, made the interfaculty all-star team as quarterback.

In the past years, the Skule teams have contributed many players to Varsity, the JV's, Balmy Beach and Sarnia of the O.R.F.U. This year's teams should not prove exceptions.

From the Senior squad, Bruce Day, a kicker who does as well with a wet ball as a dry one, and hard running Bob Ella are

## S P O R T O I K E

To date there have been no team sport titles come to the Skule trophy case. On the other hand, seven individual type sport championships have come back home — senior golf, junior and senior tennis, junior and senior harrier. If we can win these tournament championships, why can we not win the big ones, such as football and soccer?

By a quirk of fate, the play-off defeats of Skule teams in football and soccer were by Dents in the case of the Juniors and by St. Mike's in the senior. The Juniors both lost in the quarter final games and the Seniors in the semi-finals. In both sports, St. Mike's went on to win the title.

At press time the lacrosse firsts were still in the fight for the lacrosse crown, although their compatriots—the fighting thirds—the greatest of the Skule teams when it comes to sheer fight and determination, the old Skule spirit—have passed out of the picture with their loss at the hands of U.C.

If a second flood comes, it appears that only two Skulemen could survive—only two Skulemen qualified for the interfaculty swim meet of December 6th. Our engineer's hat is off to the two who upheld our name on the water as on land—J. P. Richards and A. W. Peev.

Despite the fact that both the Varsity football and soccer teams didn't quite get the titles of their groupings, although the soccer team shared the eastern soccer title with McGill, it wasn't for want of the Skule spirit. Bob Kimoff, Bill McFarlane, Bob Leeming, Ted Lanski, Hank Tamowski, Frank Palermo, Earl Ford, North Hogarth, Bob Pinkney, Bill Horton, Johnny Adams, Alex Macklin and Bill Burley were the backbone of the football team. Ken Jessup, Jose Atucha, Carl Tamburg, Johnny Hubicki and Al Rowler were the Skulemen on the soccer Blues. Skulemen also starred for the little Blues in both sports, and led them to the title in both cases.

In tennis, Skule's Gert Luk and Hugh Peacock paced the inter-collegiate team to a shared title with McGill. In track, Larry Yeigh, Clint Husband, Jack Foster, Bob Hamilton, Hulse, Parker, Ojala and Deuchars were on the senior team which finished third in the inter-collegiate. Dick Harding was picked for the senior team but was unable to compete, as he had a sprained ankle. Skule was also well represented on the intermediate track team, which won its title.

Next term basketball and hockey are the big ones, but, as in this past term, the little ones will count just as much. Minor basketball and water polo will be the supporting team sports and boxing, gymnastics, indoor track, skiing and squash the supporting individual sports. There are 27 minor league basketball teams entered and 7 major league teams. Surely from all these there will emerge a team to go all the way. Indoor track should be a repeat of outdoor. Many of last year's championship boxing team are back and Skule should be good for two titles here. With a title in hockey and even a runner up spot in basketball, Skule could easily move to the top of the Reed trophy race.

Let's see all Skulemen in there doing their duty come January.

two good prospects who can't be overlooked. The Juniors had many good prospects. Billy Clark, a diminutive speed merchant with a shift to match, made fools of opposing linebackers throughout the season. Bob Hamilton, an excellent passer, could, with added experience, be a likely candidate for the

Blues in a year or two. Following the example of his more illustrious brothers, Johnny and Gene, Ed Chorestecki turned in a notable effort at end.

In all, Skule should be proud of their football teams, who all but brought home the Mulock Cup.



## Lacrosse — Two in Playoffs

The three lacrosse teams, taken collectively, put on a creditable showing as they won 50% of their regularly scheduled games, that 9 out of 18. Currently, the firsts are still in the play-offs, with one more team to dispose of before reaching the finals. In regular play the team split, winning 3 and losing 3. They dropped St. Mike's A's twice and Meds First once, to tie with the latter team for the second slot in Group I behind the undefeated U.C. outfit. In the play-off Skule knocked Meds, the boxla champs for the last 5 years, out of the running with an 8-6 victory. By catching fire in the second quarter and slapping 5 goals after trailing 0-2, Skule led 5-4 at the half. Three more counters in the third stanza gave them the game, as the surgeons scored only once in each of the third and fourth frames. McKay was top scorer with a hat trick. Roberts got a pair, while singles went to Dewar, Byrnes and Walkey. Skule thus advanced to the quarter finals to meet Dents, winner of Group III. This game proved a softie for our slick-passing Engineers as they waltzed to a 10-1 win. And thus we find the First as we go to press, preparing to meet Meds Thirds in the semi-final round.

The Seconds owned the poorest record as they won but one game while losing five. However, the team more than made up in spirit what it lacked in ability. They forced their opponents to go all out before conceding a single defeat. After such a display, the boys promise to come back next year and play a much improved game.

The year's surprise team proved to be the third year Chemicals, more commonly

known as the Skule Thirds. These boys sported the exact opposite of the Seconds' record, that is, five wins with only one defeat. By virtue of this record, they won the Group IV championship and a spot in the play-offs. In their quarter final game they pulled an upset with a 4-1 win over Vic First, runners-up in Group II. The Skulemen set the Vicsters off balance with their persistent checking and a determined will to win. The scoring was led by Shimizu with 2 goals, while Kinstone and Clarke scored one each. Then they had to face U.C. First in the semi-finals.

The undefeated Group I champs were forced to come from behind in order to subdue the fighting Skulemen. Little Teddy Shimizu fired a neat backhander between the U.C. goalie's legs just 5 seconds after the opening face-off to throw a scare into the highly-favored artsmen. The Red and White team recovered, but had to fight for every goal against the hard trying Engineers. Skule goalie Don Milne played a sensational game, stopping countless shots as the opposition free-wheeled in on top of him. Rich Clarke also starred with his rugged defensive display, although the whole team never gave up trying.

Overlooking their final game, the team scored 38 goals, while allowing only 12 in 7 games. Rich Clarke and Ted Shimizu led the scoring with 14 and 13 goals, respectively. Ron Broger and Forbes Kinstone were key forwards and George Kolasta and Barry Jackson were defensive standouts. Don Bailey and Frank Hueston completed the team and showed marked improvement as the season progressed. The coach and manager was Stan Wiczorek, who sparked the team in the few games he did play.

## Soccer

Only the thirds failed to make the play-offs, but both Juniors and Seniors joined them on the sidelines after the first round of the play-offs. The Seniors lost to the eventual interfaculty champions, St. Mike's, a team who had lost 2-0 to Junior Skule in a regular league game. Dents proved the Juniors' downfall as they won 3-1.

The "scoreless wonders" of interfaculty soccer, the Seniors, scored only five goals all season, and yet managed to lose only two games. Somehow or other they also came through with three victories and two ties. In one of the wins there were actually two goals scored by Skule. (What a waste of effort!) At the beginning of the season it looked as though the seniors forte would be their offensive power from an apparently invincible forward line, but after the first few games the defensive aspect had taken over and continued for the remainder of the season. The defence, led by Elmer Matyas and Pete Harley at the fullback positions and Gerry Knopf at centre half, came through and allowed only three goals all season. Mat Derzai was also great on

defence, covering up for everyone from his inside position. Mat also led the offense and was ably supported by Tony Seljak, the team's leading scorer, and Fred Clark. Only a lack of polish kept the team's scoring so abnormally low. As it was, the Seniors came second in their group and even then defeated the group leaders, U.C., in their first encounter.

Unlike their older brethren, the Juniors scored fairly often in taking their group title. Throughout the season the Juniors lost only the first and last games. The defence weakened somewhat in the play-off game against Dents and a singleton by Sol Liz was more than matched by three Dent goals. Throughout the season the standout for Skule was their goalie, Arval Kimmel. Walt Suboch on defence and Liz and Karucks on offence were the main cogs in the Junior Skule attack.

The lowly thirds, despite the fact that in Bud Branson they had one the best goalies on the campus, managed to avoid winning a game.

Behind of all of Skule's soccer was the manager of Junior Skule, Gord West, and he deserves much credit for his work throughout the season.

## YOUR EXECUTIVE

(Continued from page 5)

had a busy time of it, organizing all sorts of social events and doin's. However, in these latter days, there are no elected year executives except in the fourth year, and the presidents have been put out of that much work. As a result, the year president has now become the obvious person to look after the float-parade entry, general meetings, blood donor campaign and the other "extra" jobs that come along. The fourth year president still has the Grad Ball, while the other three, and particularly the first and second year, must also keep their year-mates up to date on Engineering Society activities, and vice versa.

**SAC Reps., Third and Fourth years.** The two Students' Administrative Council Representatives are our official members of that council and will usually hold important positions on that council, as well as sitting on their Engineering executive.

**External Affairs Rep., Second, Third or Fourth year.** The external affairs rep. is our representative on the SAC's External Affairs Commission, which handles all matters pertaining to National Federation of Canadian University Students (NFCUS), World University Service (WUS) and Student Help to Asian Relief and Education (SHARE).

**Director of Professional Relations, Fourth Year.** The Director of Professional Relations provides our liaison with the Engineering Institute and the Association of Professional Engineers.

**Director of Publicity and Publications, Third or Fourth Year.** The Pub & Pub Director is appointed by the annual joint meeting of the incoming and outgoing executives each spring. It is his responsibility to organize all general publicity, and to work with the special publicity men appointed for each of the main functions.

**Editor of Toike Oike, Third or Fourth Year.** The Editor is appointed at the joint meeting, and although nominally under the direction of the Director of Publicity, he sits on the executive as a non-voting member. Obviously, any candidate for this must have a slight knowledge of journalistic practice, and should have some experience on Toike Oike.

(Continued on page 15)

# KITIMAT—Another Canadian First

In the mountains of Northern British Columbia, one of the most fascinating of the many engineering projects in Canada today is presently under construction. That is the gigantic new Neckako-Kemano hydro-electric power development and the aluminum-reduction plant at Kitimat being built by the Aluminum Company of Canada, Limited. This project marks an important milestone in the very colourful history of the metal aluminum.

The production of one pound of aluminum metal in ingot form requires four pounds of bauxite, six pounds of other raw materials and 10 kwh. of electrical power. The two basic requirements of the aluminum industry are then, cheap power and cheap transportation.

The industry has historically located where cheap water power has been available and then, as secondary industries moved in and the community developed, it has had to forfeit more and more power until eventually it was looking for more power elsewhere. Niagara Falls, N.Y. was the site of the first major aluminum-reduction plant on this continent, but no aluminum is made there today.

In Canada, the first aluminum-reduction plant was begun at Shawinigan Falls in 1900, and the second, at Arvida, now the world's largest, went into operation in 1926. In April, 1951, Alcan decided to proceed with the construction of the power development, transmission facilities, townsite, plant and port in the Kitimat region in Northern British Columbia.

On the western slopes of the Coast

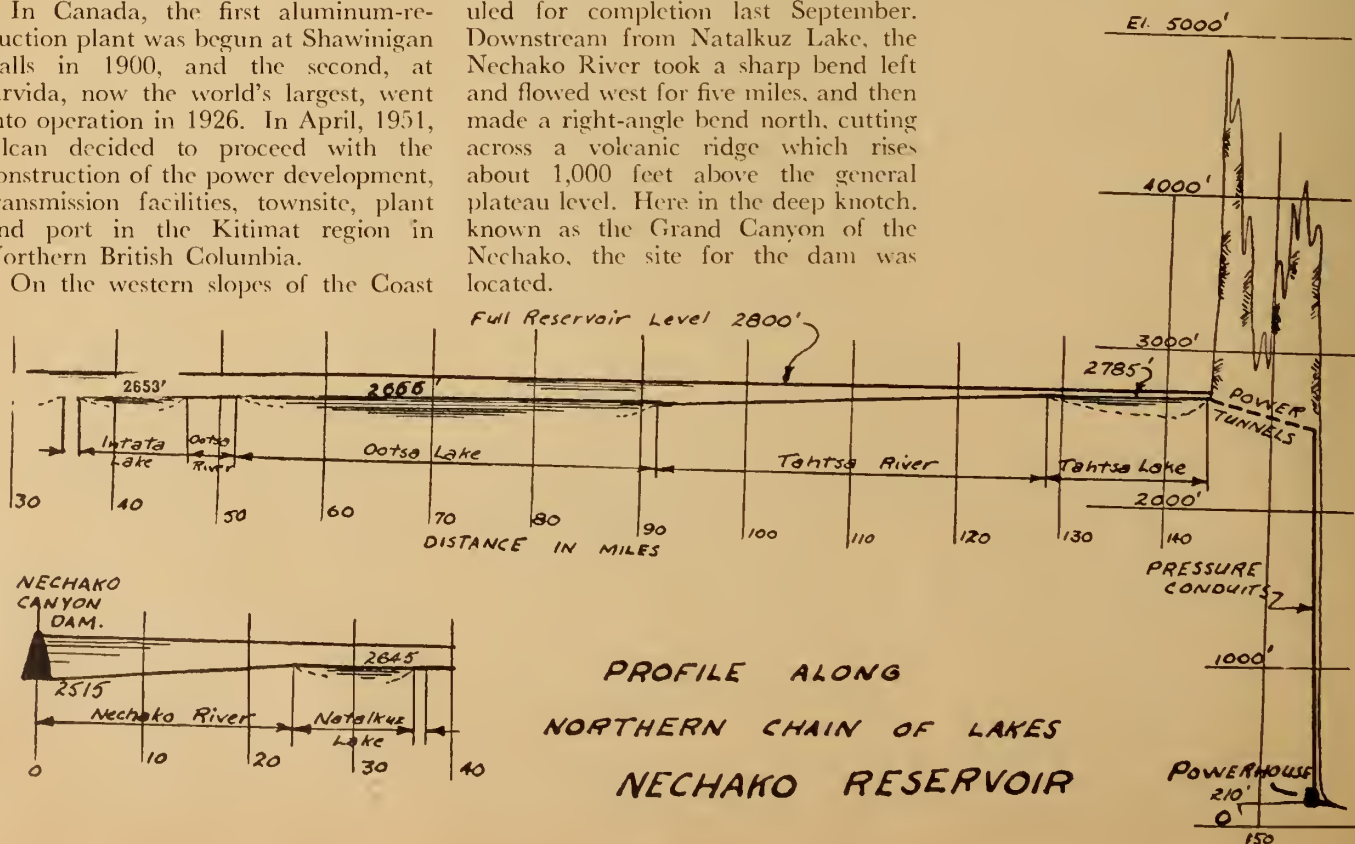
Range Mountains, thanks to the action of the ice age glaciers, most of the valleys reach sea level, close to, or even east of the crest, forming the great fjords which sharply indent the coast line. Similarly, large valleys on the eastern slopes of the range are occupied by long, narrow, and deep lakes, with western extremities close to the coast extending out over the Interior Plateau.

This leads to the unusual situation where the deep valleys of the western (ocean) side may be separated by only a few miles from the inland lakes. Such is the case at the site of the new power development, where the powerhouse on the Kemano River on the western slope is to be supplied with water from Lake Tahtsa to the east of the mountain range. By damming up the Nechako River near the head of the Grand Canyon, a great storage reservoir will be created which will impound the run-off of the Tahtsa-Nataalkuz and Eutsuk-Nataalkuz chains of lakes, at a full reservoir level of 2,800 feet above sea level and a capacity of 20 million acre-feet.

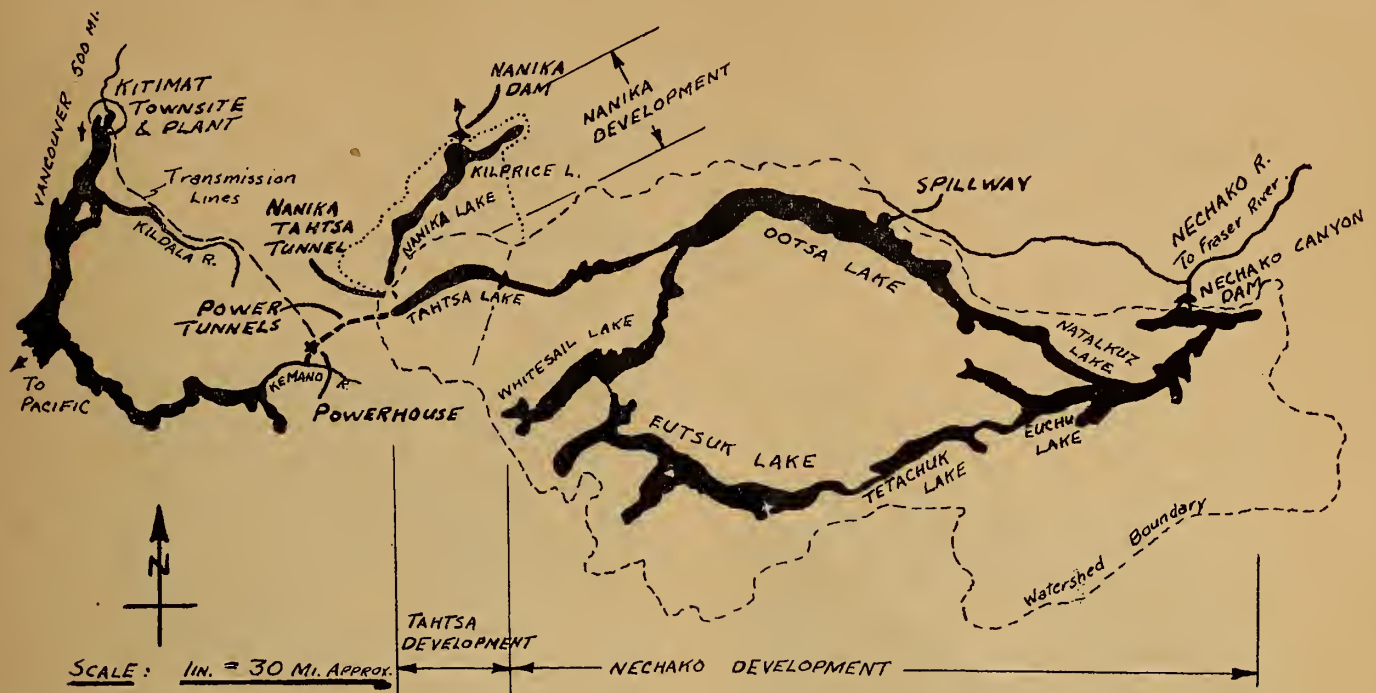
The first major phase of the project was the construction of the main storage dam, the Kenny Dam, scheduled for completion last September. Downstream from Nataalkuz Lake, the Nechako River took a sharp bend left and flowed west for five miles, and then made a right-angle bend north, cutting across a volcanic ridge which rises about 1,000 feet above the general plateau level. Here in the deep notch, known as the Grand Canyon of the Nechako, the site for the dam was located.

The dam is of the rockfill type with the heavy load-carrying rockfill supporting, on the upstream side, an impervious section of rolled earth sandwiched between two filter beds of sand and gravel, to maintain the earth. Crest length of the dam is 1,550 feet, crest width 40 feet and height above bed-rock is 317 feet.

Because of its location on a major tributary of the Fraser River, a high factor of safety was included in the design of the dam. Model tests were conducted at the University of California, using a model representing a dam with a crest width of 30 feet, a slope of one vertical in 1.5 horizontal on the upstream face of the dam, and a downstream face slope of 1:1.4. These tests showed the dam to be free of any sliding movement, even with a pressure on the upstream side over ten times that expected from the water. Other tests indicate it to be safe under ten times the usual stress allowance for dams in seismically-active regions. This is not a seismically-active region. The slopes actually used are: upstream face 1:2.5 and downstream face, 1:1.75. The spillway







for the reservoir will be remote from the dam itself — an added safety feature. If rainfall in the years ahead equals the previous twenty years' average, the reservoir will be filled in June, 1957.

Water will be carried from the reservoir 10.1 miles through the heart of the mountains, to a point above the power house site on the Kemano River, by two unlined thirty-five-foot-diameter tunnels, one of which is now under construction. From the ends of these tunnels, the water is carried down 2,500 feet through four 11 foot pressure conduits, located well within the mountain mass.

A number of reasons influenced the decision to build the tunnels and powerhouse within the mountain. The costly steel penstocks which would be necessary to withstand the pressures developed in such a high-head system are avoided, as is the necessity for finding a method of anchoring them to the hillside, and of inspecting and maintaining them. Heavily forested steep mountain slopes present a fire hazard arising from normal inspection activities, and if the slope were burnt over, the penstocks would then be vulnerable to rock and snow slides. Construction can be carried out on a twelve-month basis which would be impossible outside. And beyond that, the whole system would be free from air attack in case of war.

Each of the four pressure conduits will feed four five foot branch pipes, which will each serve one of the six-

teen 140,000 HP units. The water is discharged from the tailrace at an elevation of 200 feet, giving a net drop of 2,300 ft. The power-house will occupy an underground cavity 1,000 feet long, 80 feet wide and 135 feet high to be reached through a 1,400 foot access tunnel.

Power is generated at 13,800 volts and immediately stepped up and carried to the switch-yard outside at 300 kilovolts. The first nine miles of the transmission system will comprise two double-circuit tower lines, climbing to an elevation of about 1,000 feet where they are fed through a switching station to two single-circuit transmission lines, which run for 10.6 miles and reaching an elevation at one point of about 5,300 feet. Two double-circuit lines carry the power the rest of the fifty-odd miles to Kitimat. The central part must be carried on single-circuit lines through the Kildala Pass because of space limitations. In this area, the snow may lie twenty feet or more deep during the winter months, so that in the design of the lines in this region, an ice load of 40 lb. per ft. of conductor length at 0 deg. F. as a yield point load. A wind load of 120 m.p.h. is assumed acting on the tower surface under some conditions. The conductors used on the single-circuit Kildala Pass lines will have an outside diameter of 2.295 in. (cross section area 3,364,000 CM), the largest ever fabricated.

The reduction plant itself is being built on the delta of the Kitimat River,

and partly on alluvial fans that have been deposited on the edge of the delta by two creeks which discharge from the mountain slopes to the west. The whole area is low, running from slightly below high tide level up to 30 feet above high tide. The delta area varies in composition from silty sand to small gravel, while the alluvial fans are gravel and coarse sand. The buildings are therefore being built on a compacted gravel fill, up to 30 feet high at the lowest part of the site.

The townsite area is across the Kitimat and four miles up the valley from the smelter. A well-planned community will be built. There will be high initial costs for roads and bridges to connect the two. A railroad is also planned by the CNR to connect with their Prince Rupert branch at Terrace, 40 miles north of Kitimat and a highway may be built along a parallel route.

The Nanika-Kidprice Lakes diversion is planned for some time in the future. This project will require a storage dam similar to the Nechako Canyon Dam, about half a mile below the outlet of Kidprice Lake. This dam will have a maximum height of about 155 feet and a crest length of about 800 feet.

To divert water from the Nanika-Kidprice watershed, it is planned to drive a free-discharge tunnel uphill from the Tahtsa portal. The tunnel will be about 3.8 miles in length and have an equivalent diameter of 13 feet. This will maintain a normal full reservoir level of 3106 feet.

## Cannon, Godiva, Auction, Football — They are all part of a term's work



The pride of East House and ST5 Eng. Bus, disguised as Coventry's fair lady, makes his triumphal march down Bloor Street, the cheers of the gathered throngs ringing in his ears.



Look out! The cannon opens the Auction in its inimitable style.



Scene at Float Parade. Traditional cannon blast at College and University. Five seconds later there was no policeman—(?)



Auctioneer Barry Blanchard pauses to wipe his brow after disposing of the major item of his sale—Shiela.



## Lookin' Back— A Good Year

So here's another year, the same as ever. The freshmen get rushed through the Stores before they know what's happened and all us old-timers rush into the Stores to see what we got for talent this year.

Well, this year's social season started off with the usual bang at one of the best Freshman Receptions held in some years. What a bash! There was the LGMB cheerleaders, shapely George Shipley as Godiva, some of the best music on wax and hundreds of lovelies who had either been imported by the bus-load or thought it was about time they found out if all those stories about the Engineers were true. And then there was the Cannon, that seemed to be in the safe to stay. But finally it too arrived, and the evening was complete. So cheers to Jim Montgomery.

Came the Float Parade and School had reached another high. So we wuz robbed! Just 'cause Godiva, Horse and Co. were lagging by a few hundred feet we got disqualified. Anything for an excuse. And did you see how we staved off the Vic attack on the Cannoneers at College and Bay? So cheers to Willy Kirkpatrick and gang.

Well, I guess you saw the Cannon at the Varsity McGill game—scared the Reds right off the battlefield. So some big gun in the army thinks it's a good idea and he sends a lot of little guns to blow off a bigger gun. An' those pigs from U.C. Well, we got Ajax, and he's got as much donkey as U.C. ever had. An' that kick-line at the game advertising Skule Nite. Such queens!

Well, somewhere in there is the Auction, where both halves of the Multiplying Machine were auctioned off, an' a framed letter from the Dean, an' the big end of Vic's pole, an' the last Skule Dinner ticket on the market. So cheers to Barry Blanchard, auctioneer deluxe.

And then we get a letter from somebody whose initials are SAC or something like that, which says BLOOD MUST FLOW. Well, figuring as how we got the most powerful weapon on the campus, it's decided that the Cannon will make blood flow and so we atrophy it. What I mean to say is we're making a trophy out of it and it goes to the winner of the Red Cross Blood Campaign. Well, blood sales doubled this year over last year and Schoolmen put up one of the best shows on the campus. But evidently Schoolmen don't bleed as much as those logheads just to the west of us. But we'll win it back next year. So cheers and the Cannon (Mk. I, mind you), to Forestry.

So all in all, the School has made itself fairly well known around the campus this year, and we've had some darned good times. And there's more to come, so get in the game and give a hand and we'll have all Varsity saying, "Cheers to School".

FOSDICK.

## Facts and Figures on the School Dinner

Herewith, gentle reader, are submitted for your perusal in leisure moments, the cold, hard, brutal facts of what it costs to run a staggeringly successful "do", as the School Dinner turned out to be this year. If you will recall the facts of the case to mind, you will remember that the purchaser of a ticket to this annual event received the roast turkey dinner (worth \$2.50 hard cash), the talk by John Fisher, the comfort and good fellowship that only the Great Hall of Hart House can provide, and the Smoker afterwards, with two free you-know-whats thrown in (literally that is!), for the ridiculously low price of \$1.50. This means

that the Dinner had to be subsidized by the Engineering Society as a whole, and therefore, those foolish fellows that were too late in asking for a ticket or who didn't even try to get one, actually helped pay for the evening that their fellow Schoolmen enjoyed so much. However, this is one of the reasons for the existence of your Society and in line with this fact it will remain the policy of your Committees and the Executive to keep prices to all the year's events as low as possible.

The following is the official financial statement for the School Dinner 1952-53.

### DINNER STATEMENT

#### Expenditures

<b>A. Dinner:</b>	
Dinners (308 @ \$2.50) .....	\$ 770.00
Cigarettes at Head Table .....	.78
P. A. System in Great Hall .....	9.20
Programme and Ticket Printing .....	63.89
Advertising .....	5.00
Decorations .....	14.50
Flowers at Head Table .....	10.00
Speaker's Expenses .....	100.00
Miscellaneous .....	5.60
<b>B. Smoker:</b>	
Rent of Hearthstone Restaurant .....	70.00
Damages to same .....	7.95
Entertainment .....	25.00
Refreshments and Permit .....	162.00
Potato Chips and Chair Rental .....	30.40
	<hr/>
	\$1,274.32

#### Revenue

Total ticket sales (Dinner and Smoker) .....	\$ 448.25
Sale of Refreshments .....	69.65
Unused Refreshments Returned .....	24.00
Return of Empties .....	19.20
Subsidy voted by Executive Committee .....	575.00
Deficit .....	137.22
	<hr/>
	\$1,274.32

May We of the  
**EXECUTIVE and TOIKE OIKE**  
Take This Opportunity to Wish  
Everyone a  
**Merry Christmas**

We'll See You Again After the Exams

## School Dinner Huge Success

On Thursday evening, October 23rd, the Great Hall of Hart House was the scene of what was undoubtedly the most successful School Dinner to be held in years. This fact will be wholeheartedly supported by over three hundred eager Schoolmen, who packed the hall to capacity in order to partake of a roast turkey dinner and to hear John Fisher give a tremendously entertaining and inspiring address.

John Fisher's talk stressed that the future of Canada is in the hands of the Engineering Profession. He started off by taking his listeners on an imaginary tour of the Dominion in order to see how our assets stack up as compared to those of other countries. It was obvious, he pointed out, that the Canadian people are either not aware of the tremendous potential that exists in their own back yard, or are afraid to go out and use these God-given re-

sources for their own betterment and the betterment of the world at large. An example of this situation is to be found in Newfoundland. Mr. Fisher stated, where Premier Joe Smallwood has found it necessary to go to Europe to find men who are interested in investing in Canada's newest province.

This chronic inferiority complex is all too common in other aspects of Canadian life, he stated, lapsing easily into his favourite topic. Canadians seem to suffer from a lack of enthusiasm and a hatred of going to extremes. Success in Canada is looked upon with suspicion, whereas in the United States, success and failure are practically synonymous as long as they are on a big enough scale. Bankruptcy in Canada is the unforgivable sin, but in the States if a man goes broke in one town he can start all over again in the next, with twice as much capital

as before. This sort of "unlimited opportunity" is what is luring so many of our technically trained people across the border, he stated. We must check this drain by changing our attitude toward the youth of our country and offer them challenges and opportunities in Canada that cannot be found elsewhere.

The second half of the Twentieth Century belongs to Canada, said John Fisher. The world is looking to Canada for leadership and we must shake off our "muskeg migraine" and stop apologizing for our woods, our lakes and our tundra. "Who knows," he stated, "in fifteen or twenty years from now we may be packaging our muskeg like cornflakes and selling it throughout the world. Thirty years ago no one had even heard about Kitimat, Leduc, the new Ford plant or the Toronto subway, and yet look at these places today." There has literally been a revolution in Canada, he stated, an Engineering revolution, and one that has barely got under way. The future holds an enormous promise for Canada and her Engineers, said John Fisher. Based on our proud heritage and political traditions, the future development of Canada should far outrun that of any other country in the world.

Engineering has played and will continue to play a vital part in these developments, said Mr. Fisher. The men who first explored and pioneered the country, LaSalle, Fraser, MacKenzie and the like, were all Engineers at heart. The country needs more Engineers who are willing, like these men of old, to risk hardship and discomfort to develop our far-flung frontiers.

Every important scientific discovery, such as those made at Chalk River, is dependent on Engineering for its practical application. Mr. Fisher stated. Similarly, most of the cultural aspects of the Canadian way of life are dependent on the achievements of the Engineers. "A great future lies ahead of you," said Mr. Fisher in conclusion, "and Canada's second name should be 'Engineering'."

President Jack Cooper presided at the Dinner which, along with John Fisher's address, also featured the annual presentation of scholarships, which were presented to the winners by Professor Wright. Warden Joe McCulley replied to the toast to the University, while Dean Tupper did the honours for the School. A rousing "Toike Oike" brought to a close the 63rd Annual School Dinner in the traditional manner.





## Skule Nite

Pack your bag! Get your ticket! We're on our way to Broadway. After the usual test against the discriminating audience (Discriminating Engineers—how else), we take stock to see what our hits, runs and errors are. Well, after all is said and done, "Skule Nite" this year proved to us that it could provide some good entertainment and a lot of good times.

The numerous people connected with Skule Nite worked as a well co-ordinated team to come up with, from all reports, a successful bit of fantasy. I would refrain from mentioning names because of the swell job done by all concerned, but I can't help placing many big slaps on the back of George Hayman, whose musical and directing talents made the show what it was. Perhaps, this year, 'Skule Nite' demonstrated to those of lesser known units of this University that S. P. S. can put together a good campus show with universal appeal.

Certainly all those connected with Skule Nite seemed to enjoy working in it and at times probably enjoyed the show more than the audience. Here is one outlet where a lot of fun can be had and a lot of interesting experience can be gained. Many people only regret that they didn't get into the act sooner, because once you work for Skule Nite, it's got you for the rest of your stay at S. P. S.

Many people don't realize the amount of time and effort that goes into a show like Skule Nite, and less of what it costs.

I'm sure that if all the man-hours (woman-hours too!) were added up, it would represent a fair percentage of the time we are supposed to spend at school per year. But everyone donated generously of this time which is so valuable, and really plugged away at their various jobs.

Many have asked what happens to the profit from the show — PROFIT?????? Who is kidding who — with about 75% of the show sold, resulting in cash receipts of over \$1400, plus a \$500 subsidy from the Engineering Society Funds, Skule Nite is going to just about break even. So you see, or do you, Skule Nite costs about \$2000 to put on and that is without paying one solitary cent to anyone concerned with working in it.

What with a subsidy from the Engineering Society, everyone when they pay their fees, automatically pays partially for a ticket to Skule Nite. Thus you might as well get the rocks out of your pants and buy a ticket next year. But to sum up, Skule Nite 5T3 — its been G-R-A-N-D — hope you thought so too!

See you at Skule Nite next year — If you can get a ticket — they'll probably be as scarce as a '53 exam reprint.

For the sake of drawma,  
DON GILLEY.



LEFT: Scenes from dress rehearsal.

1. An early morning conference backstage.
2. More early morning.
3. "Gay nineties".



# New Channel To De-Flood Brampton

By J. F. McQuat, 5T6

The Winnipeg Flood is a wonderful subject for conversation all across Canada every spring, but the people of Brampton always have their own flood as a topic to pass the time of day. For years, Etobicoke Creek has become swollen enough in its own importance every spring, to set most of the commercial section of Brampton gently awash. Finally the government was flooded too—flooded with demands for action.

Through the years various proposals to avert the flooding had been made, but it was not until 1946 that the Conservation Authorities Act was passed, that any true action could be taken. This Act enables municipalities in a watershed to act with the Government to control floods and conservations.

The Provincial Department of Planning and Development was asked by the Etobicoke River Conservation Authority to study schemes for conservation and flood control in the watershed, especially around Brampton. The Department made several recommendations, the main one being the construction of a Diversion Channel.

The Flood of 1948, which flooded the business section with three feet of water and caused much damage and financial loss, started the project.

The plans drawn up by the Ontario Department of Planning and Develop-

ment, under the supervision of A. H. Richardson, were studied by the Authorities Engineers. Sample borings were made and suggestions for shape, grade and line of the channel were studied. The line had to be determined with a view to properties along the way. Some properties however, with houses on them, had to be acquired and the houses torn down, a high but necessary expense.

The Channel begins about 600 feet north of Church Street and re-enters

the creek bed 1000 feet south of Wellington Street in Brampton, a complete length of 3200 feet, nearly ten football fields. Of these ten football fields, six of them are concrete lined. The concrete section is 30 feet wide at the bottom, with sides of slope 1:2 rising ten feet, making the channel 70 feet wide at the top of the concrete lining. The floor of the lined channel has a grade of .04%. To keep the water moving in the summertime, there is an inner channel in the bottom, 12 feet wide at the top of the concrete at the bottom and three to four feet deep. These engineers are smart fellows, eh?

Even we here at the University can claim some credit, for it was our own Dr. G. Ross Lord, Professor of Mechanical Engineering, who conducted the hydraulic model tests to determine the design of the spillway section where a drop of seven feet is taken. This spillway section was necessary because in constructing the channel, the length of the flow had been reduced, while the drop remained the same. These tests were conducted at the University on a model 1/24 scale, which was designed to control a flow of double the normal flood period—the maximum is the danger; the minimum takes care of itself. Dr. Lord is Hydraulic Consultant to the Department of Planning and Development.

The flow in the Etobicoke watershed, an area of twenty-five miles, is almost



—APEO

A view of the spring freshet at the outlet of the flood control channel, taken early in March of this year.



—APEO

A midsummer picture of the diversion channel in Brampton and showing the Scott St. bridge from the up-stream side.



nil in the dry seasons, but in the late winter and early spring, the rains and melting snow combine to flood the surrounding land. It is hard to understand why action had not been taken before this. Year after year the river, which meanders directly through the town, even under several buildings, has caused floods and breakage due mainly to ice-jams. The creek has many sharp bends and restricted passages, one of which is the business section of Brampton, and it is in these places that ice-jams occur. The shape of the channel cross-section was chosen to minimize the occurrence of ice-jams. Since the floods occur quickly and are usually of short duration, measurements of flow are hard to obtain, however, flows of 2400 cubic feet per second have been measured and that is a lot of water. Stone rip-rap lines the earth embankments preceding and following the concrete section.

Engineers also made a contribution to the construction of three concrete rigid frame bridges with a clear span of seventy-two feet. Two of the bridges have a total width, road and sidewalks of 33.75 feet and the third at Highway No. 7, a width of 63.6 feet. There is also a steel girder railway bridge

seventy-two feet wide on concrete abutments.

Flood control is not only a matter of changing the course of a stream, but making arrangements so that life goes on smoothly afterwards. In this case it was a rearrangement of the Town's sewage system. This meant laying a collector sewer and building a sewage pumping station. The water-mains and underground telephone wires also had to be sorted out.

Construction itself was begun in June, 1950, and the channel was declared officially open this past June. The portion of the project which has been finished has cost about \$750,000.00 and when the various smaller jobs are completed, the cost will amount to about \$900,000.00. The Ontario Government will pay 75% of this cost and the remainder to be undertaken by the Etobicoke-Mimico Conservation Authority, who will pass it on to the Town of Brampton in accordance with the Conservation Authorities Act.

The surprising feature in the project has been the co-operation between the various organizations. The Provincial Department of Planning and Development, Department of Highways, Cana-

dian National Railways, The Bell Telephone Company and the Town of Brampton all co-operated with the Authority. Who ever heard of such a thing?

The government is represented by A. H. Richardson and the project is supervised by James F. MacLaren of Toronto.

## YOUR EXECUTIVE

(Continued from page 7)

### ATHLETIC ASSOCIATION

The executive of the Applied Science Executive is elected at the same time as that of the Engineering Society. The President of the AA, who is from fourth year, also sits, ex-officio, on the Engineering Society executive. Other members of this executive elected at this time are the Vice-President from second year; Treasurer, third year; one representative from each year, and an appointed Secretary and Publicity Director.

### FOURTH YEAR EXECUTIVE

There are also elected to the fourth year executive at the same time as the Engineering Society election, a Vice-President and a Secretary-Treasurer.



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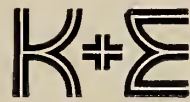


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